Chapter 1

The Origins of German Defensive Doctrine

In 1941, the German Army's doctrine for defensive operations was nearly identical to that used by the old Imperial German Army in the final years of World War I. The doctrinal practice of German units on the Western Front in 1917 and 1918—the doctrine of elastic defense in depth—had been only slightly amended and updated by the beginning of Operation Barbarossa. In contrast to German offensive doctrine, which from 1919 to 1939 moved toward radical innovation, German defensive doctrine followed a conservative course of cautious adaptation and reaffirmation. Consequently, although the German Army in 1941 embraced an offensive doctrine suited for a war of maneuver, it still hewed to a defensive doctrine derived from the positional warfare (*Stellungskrieg*) of an earlier generation.

Elastic Defense: Legacy of the Great War

The Imperial German Army adopted the elastic defense in depth during the winter of 1916—17 for compelling strategic and tactical reasons. At that time, Germany was locked in a war of attrition against an Allied coalition whose combined resources exceeded those of the Central Powers. The German command team of Field Marshal Paul von Hindenburg and General Erich Ludendorff hoped to break the strategic deadlock by conducting a major offensive on the Russian Front in 1917. Therefore, they needed to economize Germany's strength on the Western Front in France and Belgium, minimizing casualties while repelling expected Allied offensives. To accomplish this, they sanctioned a strategic withdrawal in certain sectors to newly prepared defensive positions. This Hindenburg Line shortened the front and more effectively exploited the defensive advantages of terrain than did earlier positions. This withdrawal was a major departure from prevailing defensive philosophy, which hitherto had measured success in the trench war solely on the basis of seizing and holding terrain. In effect, Ludendorff* adopted a new policy that

*Hindenburg and Ludendorff nominally operated according to the dual-responsibilty principle of the German General Staff, whereby the commander and his chief of staff shared responsibility and authority on a nearly equal basis. In practice, Ludendorff's energies were so great that Hindenburg regularly deferred to his judgment. Ludendorff also routinely involved himself in matters of technical detail far beneath the Olympian gaze of Hindenburg. In the matters being discussed, Ludendorff thus played the dominant role at both the strategic and tactical levels.

emphasized conserving German manpower over blindly retaining ground—a strategic philosophy whose tactical component was an elastic defense in depth.

To complement his strategic designs, Ludendorff directed the implementation of the Elastic Defense doctrine.[1] This new doctrine supported the overall strategic goal of minimizing German casualties and also corresponded better than previous methods to the tactical realities of attack and defense in trench warfare.

Through the war's first two years, German (and Allied) doctrinal practice had been to defend every meter of front by concentrating infantry in forward trenches. This prevented any enemy incursion into the German defensive zone but inevitably resulted in heavy losses to defending troops due to Allied artillery fire. Such artillery fire was administered in increasingly massive doses by the Allies, who regarded artillery as absolutely essential for any successful offensive advance. (For example, even the stoutest German trenches had been almost entirely eradicated by the six-day artillery preparation conducted by the British prior to their Somme offensive in 1916.) Consequently, the Germans sought a defensive deployment that would immunize the bulk of their defending forces from the annihilating Allied cannonade.

The simple solution to this problem was to construct the German main defensive line some distance to the rear of a forward security line. Although still within range of Allied guns, the main defensive positions would be masked from direct observation. Fired blindly, most of the Allied preparatory fires would thus be wasted.

General Erich Ludendorff. Ludendorff's sponsorship caused the Elastic Defense to be adopted by the Imperial German Army during the winter of 1916—17

In developing the Elastic Defense doctrine, the Germans analyzed other lessons of trench warfare as well. The German Army had realized that concentrated firepower, rather than a concentration of personnel, was the most effective means of dealing with waves of Allied infantry. Too, the Germans had learned that the ability of attacking forces to sustain their offensive vigor was seriously circumscribed. Casualties, fatigue, and confusion debilitated assaulting infantry, causing the combat power of the attacker steadily to wane as his advance proceeded. This erosion of offensive strength was so certain and predictable that penetrating forces were fatally vulnerable to counterattack—provided, of course, that defensive reserves were available to that end. Finally, the Allied artillery, so devasting when laying prepared fires on observed targets, was far less effective in providing continuous support for advancing infantry because of the difficulty in coordinating such fires in the days before portable wireless communications. Indeed, because the ravaged terrain hindered the timely forward displacement of guns, any successful attack normally forfeited its fire support once it advanced beyond the initial range of friendly artillery.[2]

Between September 1916 and April 1917, the Germans distilled these tactical lessons into a novel defensive doctrine, the Elastic Defense.[3] This doctrine focused on defeating enemy attacks at a minimum loss to defending forces rather than on retaining terrain for the sake of prestige. The Elastic Defense was meant to exhaust Allied offensive energies in a system of fortified trenches arrayed in depth. By fighting the defensive battle within, as well as forward of, the German defensive zone, the Germans could exploit the inherent limitations and vulnerabilities of the attacker while conserving their own forces. Only minimal security forces would occupy exposed forward trenches, and thus, most of the defending troops would be safe from the worst effects of the fulsome Allied artillery preparation. Furthermore, German firepower would continuously weaken the enemy's attacking infantry forces. If faced with overwhelming combat power at any point, German units would be free to maneuver within the defensive network to develop more favorable conditions. When the Allied attack faltered, German units (including carefully husbanded reserves) would counterattack fiercely. Together, these tactics would create a condition of tactical "elasticity": advancing Allied forces would steadily lose strength in inverse proportion to growing German resistance. Finally, German counterattacks would overrun the prostrate Allied infantry and "snap" the defense back into its original positions.

The Germans accomplished this by designating three separate defensive zones—an outpost zone, a battle zone, and a rearward zone (see figure 1). Each zone would consist of a series of interconnected trenches manned by designated units. However, in contrast to the old rigid linear defense that had trenches laid out in parade-ground precision, these zones would be established with a cunning sensitivity to terrain, available forces, and likely enemy action.

The outpost zone was to be manned only in sufficient strength to intercept Allied patrols and to provide continuous observation of Allied positions. When heavy artillery fire announced a major Allied attack, the forces in the outpost zone would move to avoid local artillery concentrations. When Allied infantry

approached, the surviving outpost forces would disrupt and delay the enemy advance insofar as possible.

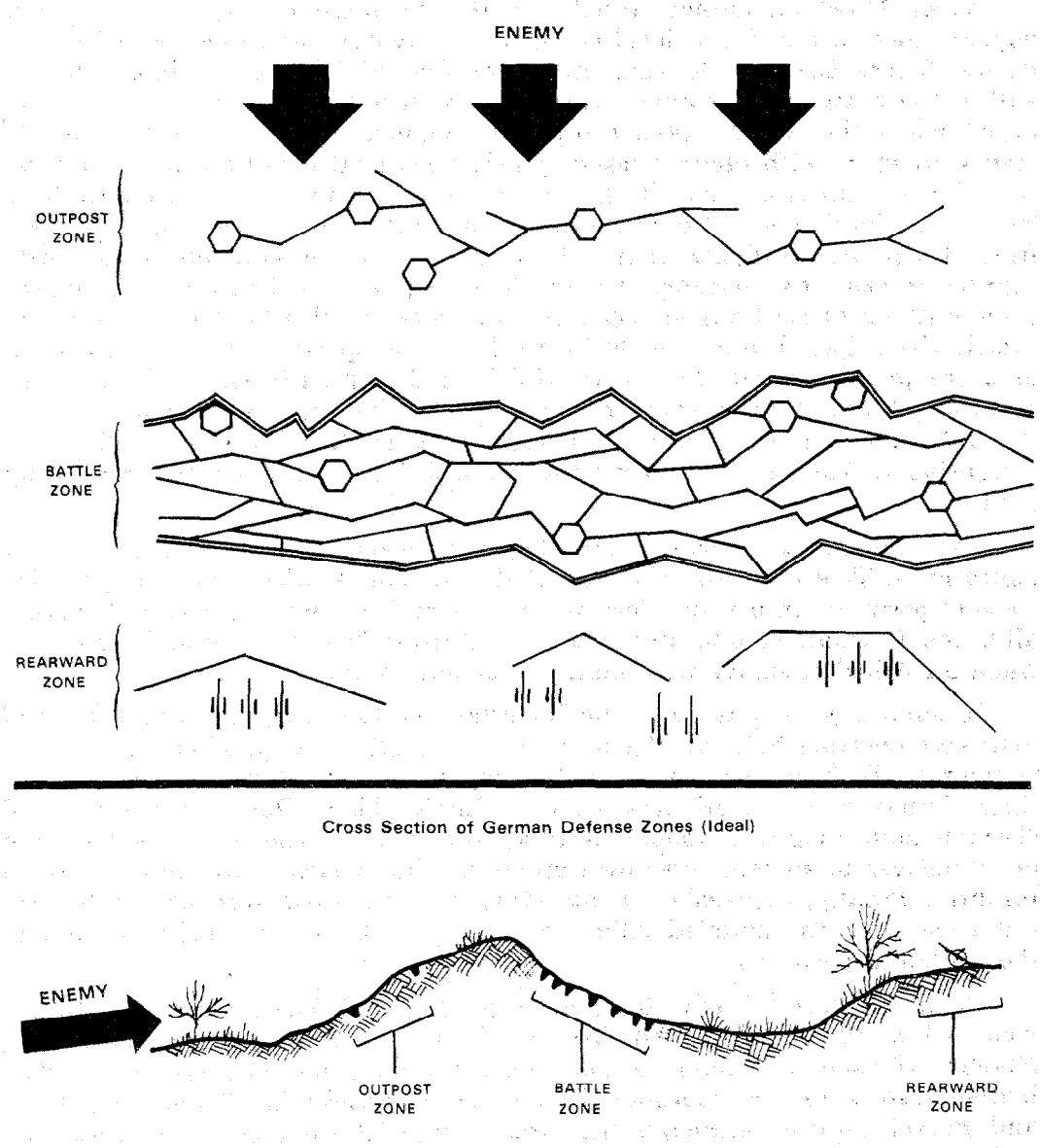


Figure 1. The Elastic Defense, 1917—18

If a determined Allied force advanced through the outpost zone, it was to be arrested and defeated in the battle zone, which was normally 1,500 to 3,000 meters deep. The forward portion of the battle zone, or the main line of resistance, was generally the most heavily garrisoned and, ideally, was

masked from enemy ground artillery observation on the reverse slope of hills and ridges. In addition to the normal trenches and dugouts, the battle zone was infested with machine guns and studded with squad-size redoubts capable of all-around defense.

When Allied forces penetrated into the battle zone, they would become bogged down in a series of local engagements against detachments of German troops. These German detachments were free to fight a "mobile defense" within the battle zone, maneuvering as necessary to bring their firepower to bear.[4] When the Allied advance began to founder, these same small detachments, together with tactical reserves held deep in the battle zone, would initiate local counterattacks. If the situation warranted, fresh reserves from beyond the battle zone also would launch immediate counterattacks to prevent Allied troops from rallying. If Allied forces were able to withstand these hasty counterattacks, the Germans would then prepare a deliberate, coordinated counterattack to eject the enemy from this zone. In this coordinated counterattack, the engaged forces would be reinforced by specially designated assault divisions previously held in reserve. If delivered with sufficient skill and determination, these German counterattacks would alter the entire complexion of the defensive battle. In effect, the German defenders intended to fight an "offensive defensive" by seizing the tactical initiative from the assaulting forces.[5]

The rearward zone was located beyond the reach of all but the heaviest Allied guns. This zone held the bulk of the German artillery and also provided covered positions into which forward units could be rotated for rest. Additionally, the German counterattack divisions assembled in the rearward zone when an Allied offensive was imminent or underway.

In summary, in late 1916, the Imperial German Army adopted a tactical defensive doctrine built on the principles of depth, firepower, maneuver, and counterattack. The Germans used the depth of their position, together with their firepower, to absorb any Allied offensive blow. During attacks, small German units fought a "mobile defense" within their defensive zones, relying on maneuver to sustain their own strength while pouring fire into the Allied infantry. Finally, aggressive counterattacks at all levels wrested the tactical initiative from the stymied Allies, allowing the Germans finally to recover their original positions.

Using the new defensive techniques, the Imperial German Army performed well in the 1917 battles on the Western Front. In April, the massive French Nivelle offensive was stopped cold, with relatively few German losses. The British also tested the German defenses with attacks in Flanders at Arras and Passchendaele. Although the British enjoyed some local successes, no serious rupture of the German defensive system occurred.

Throughout the 1917 battles, the Germans modified and refined the Elastic Defense: among other changes, the battle zone was deepened, heavy machine guns were removed from the static redoubts to provide suppressive fire for the local counterattacks, and German artillery was encouraged to displace rapidly to evade counterbattery fire.[6] On the whole, however, the novel system of elastic defense in depth was thoroughly vindicated. As the German Crown Prince Friedrich Wilhelm remarked in his memoirs, "Had we held to the stiff

defense which had hitherto been the case [rather than the Elastic Defense system], I am firmly convinced that we would not have come victoriously through the great defensive battles of 1917."[7]

One ominous development that seemed to challenge the continued effectiveness of the Elastic Defense was the British tank attack at Cambrai in November 1917. There, massed British tanks broke through the entire German defensive system, and only the combined effects of German counterattacks and British irresolution restored the German lines. This wholesale use of tanks to sustain the forward advance of an Allied attack seemingly upset the logic on which the German defensive concept was based.

Although insightful in other aspects of battlefield lore, the Germans mistakenly discounted the combat value of tanks despite the Cambrai incident. While the Germans were impressed by the "moral effect" that tanks could produce against unprepared troops, they also felt that local defensive countermeasures (antitank obstacles, special antiarmor ammunition for rifles and machine guns, direct-fire artillery, and thorough soldier training) virtually neutralized the offensive value of the tank.[8] In the German assessment, tanks were similar to poison gas and flamethrowers as technological nuisances without decisive potential.[9] The Germans minimized the British success at Cambrai by stating that it was the result of tactical surprise, achieved by the absence of the customary ponderous artillery preparation, rather than from the tank attack itself. In consequence, no reassessment of the Elastic Defense was deemed necessary, and none was undertaken. For example, the updated version of the German doctrinal manual for defensive operations published in 1918 made no special reference to tank defense.[10]

The Final Collapse: Unanswered Questions

In 1918, the Imperial German Army launched a series of offensive drives on the Western Front. Between March and August, the Germans surged forward in a desperate attempt to achieve a decisive military victory before infusions of American manpower could resuscitate the groggy Allies. Although successful at the tactical level, these attacks were not well conceived strategically.[11] As a result, these "Ludendorff offensives" achieved only a meaningless advance of the German lines and fatally depleted the last reservoirs of German strength. In fact, they so exhausted the German Army that it was incapable even of consolidating its gains against Allied counterattacks from August onward. The Germans attributed the rapid collapse of their defense after August 1918 primarily to demoralization and inadequate resources rather than to faulty doctrinal methods. As one German general later wrote, "Under such conditions, there could be no longer any mention of tactics" due to the chaotic state of the German armies.[12]

The Ludendorff offensives consumed the most combat-worthy divisions in the German Army. The German attacks were carried forward by specially designated "assault divisions." When the German offensives faltered, feeble "trench divisions," whose personnel and equipment were inferior to the assault units, assumed the burden of defensive operations. These trench divisions, which had been purposely starved of replacements to flesh out the shock divisions, turned out not to be merely second-rate but to be flatly "listless

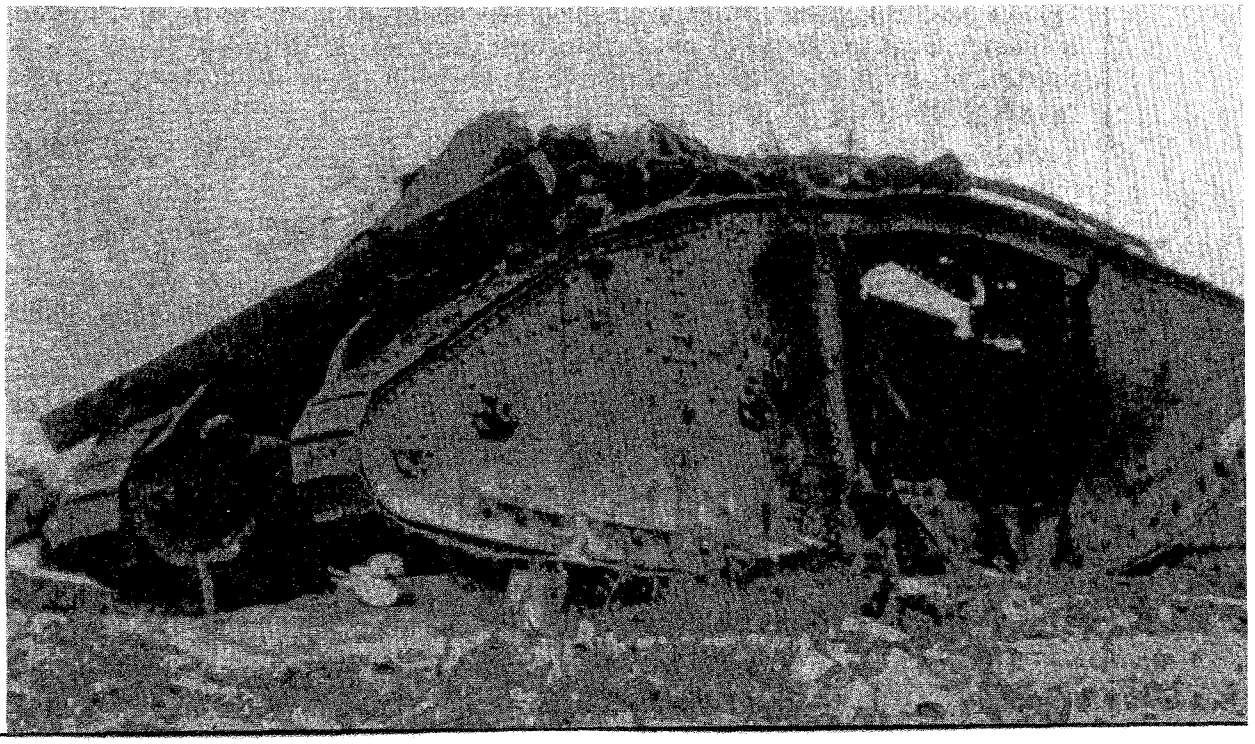
and unfit."[13] Without support from the burned-out assault divisions, the trench divisions were unable to hold their own against the Allied counteroffensives. As the Allied counterblows gathered momentum, German morale plummeted, and German troops began to surrender in unprecedented numbers. Under these circumstances, German small units could not be relied on to demonstrate the determination and aggressiveness essential to the Elastic Defense.[14]

The tottering German forces were especially vulnerable to the shock effect of Allied tanks, particularly when used with chemical smoke. Looming out of the murk at close range, tanks often touched off epidemics of "tank fright." Ludendorff belatedly conceded that tank attacks "remained hereafter our most dangerous enemies. The danger increased in proportion as the morale of our troops deteriorated and as our divisions grew weaker and more exhausted."[15] Since the Germans had discounted the value of tanks, they had virtually none of their own with which to bolster the morale of their beleaguered infantry.[16]

The increasingly general use of tanks by the Allies prompted expedient modifications to the Elastic Defense in the latter months of the war. When used by the Allies en masse, tanks could overrun single lines or even belts of antitank weapons. Consequently, the Germans distributed all types of antitank weapons in greater numbers throughout the depth of the battle zone, transforming it into a tank defense zone wherein enemy armor and infantry could both be destroyed.[17] These techniques successfully halted even heavy tank attacks, provided that the defending German infantry remained steadfast. As one German commander insisted, "The infantry must again and again be made to realize that the tanks hardly deserve a battle-value at all and that their threatening danger is overcome when the infantry does not permit itself to become frightened by them."[18] German commanders exhorted their men to steel their nerves and to stand bravely as had the "Teutons of old against the Romans."[19] Brave words could not compensate for a lack of brave soldiers, however, and the "surrender bacillus" continued to rage through the German ranks.[20]

Lack of sufficient manpower hurt the Germans as much as the lack of combat will. Because of losses in the Ludendorff offensives, the German

Tank of the U.S. 27th Division destroyed by a German mine, September 1918



armies no longer disposed of sufficient reserves to deliver the timely counterattacks that the Elastic Defense required. Time and again, Allied penetrations prompted large-scale German withdrawals lest neighboring frontline units be encircled or enveloped from the enemy salients.[21] Too, the Allies (particularly the British) had refined their own offensive techniques, eschewing elephantine artillery preparations in favor of short, sharp barrages. Without the customary long artillery pounding that signaled Allied intentions, the Germans were less able to shuttle their few reserves to threatened sectors.

The German High Command finally bowed to the inevitable, and an armistice was enacted on 11 November 1918. In later years, many Germans allowed bitterness to cloud the memory of their defeat in the last months of World War I. Many high-ranking military officers blamed Germany's demise on a "stab in the back" by defeatist elements at home.[22] In reality, the Imperial German Army was in serious disarray from August 1918 onward and could not have prevented a complete Allied military victory. Frustration and Nazi demagoguery gave the stab-in-the-back story a certain currency during the interwar years, but the popular memory simply did not conform to historical reality.

The distorted memories of World War I left behind an uncertain and even contradictory military legacy. Through four grim years, the conflict had been dominated by positional warfare. Consequently, the overriding recollection of the war on the Western Front was of entrenched stalemate, in which the first doctrinal priority was to assure a strong tactical defense.

In the German view, the war as a whole had been an attritional contest, ultimately decided by the superior weight of Allied manpower and resources. Unable to match the Allied coalition in either of these categories, the Germans had sought to maximize their own fighting power by doctrinal means. The Elastic Defense stood alone as the best system for conducting an effective positional defense at minimal cost. (Even the Allies testified to the superiority of the German techniques. The British, for example, attempted to incorporate the German defensive methods into their own postwar field service regulations.[23]) Consequently, a generation of German officers emerged from the Great War steeped in the tactical precepts of the Elastic Defense. To these, the value of the Elastic Defense had been repeatedly assayed by tests in France and Flanders. On many fields, the Germans had successfully pitted defensive depth, firepower, maneuver, and aggressive counterattack against the brutish weight of Allied artillery, infantry, and even tanks. It was a tactical creed that was not to be forgotten.

Less clear, however, were the tactical lessons learned from the war's final months. Then, positional warfare had briefly given way to battles of movement. The Ludendorff offensives demonstrated the possibility of penetrating Allied trench defenses through attacks by infiltration. The successful Allied counteroffensives from August 1918 onward showed that perhaps even the Elastic Defense was not a perfect talisman against renewed maneuver warfare, since weak and demoralized German forces could not turn away overwhelming tank and infantry assaults through doctrinal charms alone. However, most Germans excused the final Allied victories as being due to the prostration of German armies rather than to any failure of defensive doctrine. Indeed,

American infantrymen escort German prisoners to the rear, 1918

isolated examples of German defensive success right up until the armistice seemed to indicate that the Elastic Defense would have prevailed if determined troops had practiced it correctly.

German Defensive Doctrine in the Interwar Years

In the years following 1918, all major armies sought to divine from the Great War's confusing impressions the nature of future wars. Would future battlefields resemble the entrenched *Stellungskrieg* of the 1914—17 Western Front? Or would new tactics, together with the new technology of armored vehicles and motorized movement, produce fluid battles of maneuver? The development of the German blitzkrieg offensive techniques foresaw the latter scenario, a leap of faith not shared by the French or the British.

The clarity of German doctrinal vision in defensive matters was less certain, however. By their very nature, defensive operations generally imply surrendering the initiative to the enemy. As a consequence, defensive measures must be able to accommodate the attacker's tactic of choice, a circumstance that breeds caution and redundancy. For the purposes of defining defensive doctrine, the Germans were unable to predict for certain whether future wars would be of a positional or of a maneuver nature. Therefore, the German Army pursued a doctrinal compromise that would operate effectively in either environment.

The Elastic Defense became the German Army's all-purpose defensive doctrine. As the familiar, proven method of World War I, the Elastic Defense was the obvious theoretical starting point for interwar doctrinal development. With minor alterations, it remained the essence of German defensive practice until the beginning of World War II. However, the retention of the basic

Elastic Defense concept was not a simple, straightforward process. To many German officers, the Elastic Defense seemed too trench oriented, and they argued that the retention of a doctrine designed for positional warfare would invite disaster in future wars. At the very least, the Elastic Defense needed to have its antitank properties upgraded in order to confirm its continuing validity in an armored warfare environment. Therefore, these and other considerations weighed on the interwar development of German defensive doctrine.

The building of a new German Army began in 1919. Since wholesale desertions had caused the old Imperial German Army to evaporate within weeks of the 1918 armistice, the new *Reichswehr** was created virtually from scratch.[24] Among the many immediate problems pressing the *Reichswehr* and its acting chief of staff, General Hans von Seeckt, was the publication of new field manuals to guide postwar training.

Seeckt sought to compile the most practical and effective combat procedures from the Great War into a single doctrinal manual. First published in 1921, *Führung und Gefecht der verbundenen Waffen* (Leadership and Combat of the Combined Arms) remained the standard operations manual for the *Reichswehr* until 1933.

The German postwar uncertainty about the positional versus the maneuver visions of future war was evident in the new manual. Although Seeckt was an ardent advocate of maneuver warfare, his early influence was counterbalanced by other senior officers of the "trench school."[25] To these, the harsh catechism of *Stellungskrieg* demanded the retention of a trench-oriented defense doctrine. *Führung und Gefecht* compromised by conceding that either form of warfare was possible and showed how the Elastic Defense could be adapted to either circumstance (see figure 2).

For stabilized situations, *Führung und Gefecht* prescribed an elastic defense in depth that was identical in every major detail to the Elastic Defense described in the 1917 and 1918 Imperial German Army pamphlets. The defense was to be organized in three principal defensive zones as before, within which the defending forces would "exhaust [the enemy's] power of attack by resistance in depth."[26] Attacking enemy forces were to be subjected to a withering combination of small-arms and artillery fire throughout the depth of the battle area. Defending units would "seek timely and unnoticed evasion of hostile superiority at one point, while offering resistance elsewhere (mobile defense)."[27] Finally, fierce counterattacks by engaged units as well as by reserve forces held in readiness to the rear would be "of decisive importance."[28] *Führung und Gefecht* thus endorsed the same defensive formula of depth, firepower, maneuver, and counterattack as had been developed during World War I.

The only departures from World War I usage were minor. Defensive zones were increased in depth, and the distance between them was extended to ensure that, "in the event of a breakthrough, a displacement by the enemy artillery [would] be necessary before the attack [could] be continued against

*Technically, the new German Army was the *Reichsheer*. However, except in offical documents, the term *Reichswehr* was used indiscriminately to describe both the German armed forces in general and the land army in particular. The *Reichswehr* went through a series of provisional incarnations immediately after the war before assuming its "final" form in 1920.

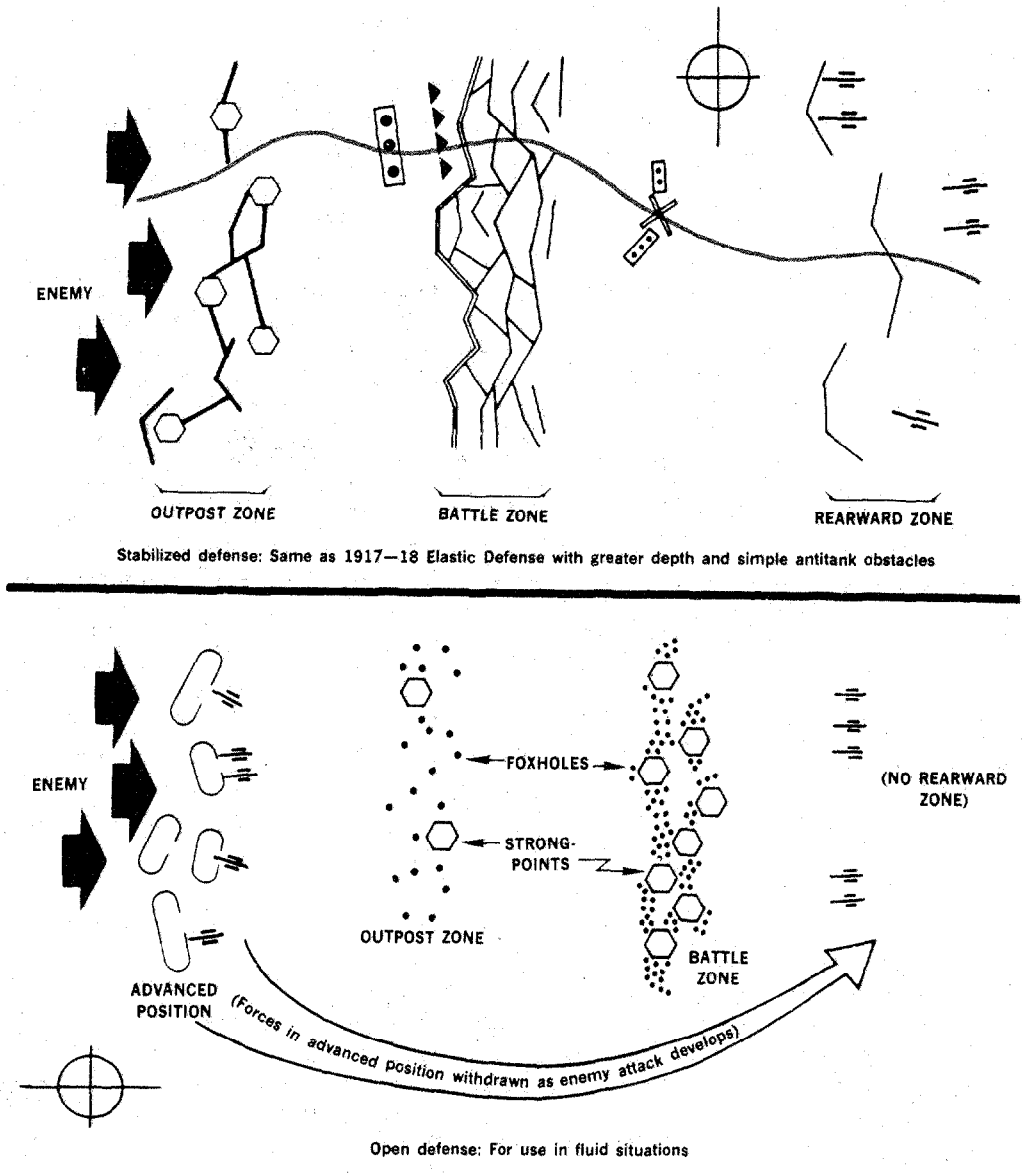


Figure 2. Defense in stabilized and open situations, 1921

the next position."[29] Furthermore, the 1921 manual finally deigned to discuss measures for defense against tanks, although the measures consisted mainly of local obstacles and artillery concentrations along tank avenues of approach.[30]

When forces were defending in open situations during battles of maneuver, *Führung und Gefecht* simply advised a somewhat looser application of the Elastic Defense. Since the presumed pace of operations would prevent the construction of fully fortified trenchworks, both the outpost zone and the battle zone would normally consist of a system of "foxholes and weapons pits" with-

Senior German officers observe *Reichswehr* maneuvers, circa 1928

out connecting trenches.[31] A rearward zone would not even be constructed. To provide greater operational depth and warning, an advanced position would be created where possible. This position would be held by covering forces whose missions were to provide early warning of the enemy's approach, confuse the enemy as to the location of the actual defensive zones, and in general, constitute an additional defensive buffer when the armies were not in close contact.[32] Despite these slight alterations to the defensive posture, the "defense in open situations" still conformed to the Elastic Defense. Depth and maneuver were emphasized in order to strengthen the combat power of the defending forces, and integrated firepower and counterattack would still be used to destroy the enemy.[33]

The *Reichswehr*'s principal doctrinal publication thus steered an equivocal course between the positional and the maneuver scenarios, prescribing a form of Elastic Defense for each. However, in practice, the willful General von Seeckt temporarily suspended the Elastic Defense instructions in *Führung und Gefecht.*

Seeckt, whose wartime experience had been mostly on the more fluid Russian and Balkan Fronts, retained an enthusiasm for maneuver undampened by the gory disappointments of France and Flanders. Seeckt was convinced that a renewed emphasis on bold offensive maneuver could, in the future,

result in rapid battlefield victories. A man of strong convictions, Seeckt was intolerant of subordinates who did not endorse his ideas. Those officers of the trench school who were unwilling to adapt themselves to Seeckt's theories were either silenced or dismissed.[34] Therefore, Seeckt was able to bend the *Reichswehr*'s training sharply in the direction of mobility and maneuver. Although the Elastic Defense remained on the books as official *Reichswehr* doctrine, Seeckt whipped the German Army into a fervid pursuit of mobility and offensive action that caused the Elastic Defense to be all but ignored in practice.

Seeckt wrote in a 1921 training directive that the strongest defense lay in mobile attack, a policy that cultivated offensive action at the tactical level for even defensive purposes.[35] Seeckt insisted that skillful maneuver could reduce virtually all battlefield actions to a form of meeting engagement in which aggressive actions would prevail.[36] Where overwhelming enemy strength precluded the possibility of attack, Seeckt advocated a mobile delaying action to preserve freedom of maneuver by friendly forces.[37] The use of initiative and speed of movement to create opportunities for offensive thrusts was emphasized in *Reichswehr* field exercises. Also, as early as 1921, military maneuvers examined the feasibility of using motor vehicles to enhance mobility and offensive striking power in nominally "defensive" scenarios.[38]

Seeckt's emphasis on swift offensive action suited the temper and means of the German Army. German military studies conducted after World War I were virtually unanimous in blaming Germany's defeat on the exhausting *Stellungskrieg*.[39] Thus, Seeckt's theories pointed a way out of that attritional wilderness. By means of rapid offensive blows against even superior rivals, Germany hoped to avoid the attritional quicksand of the Great War and return instead to the battles of maneuver and annihilation at which German armies had traditionally excelled.

Too, the pitifully small resources allowed the *Reichswehr* by the Treaty of Versailles precluded positional defense. Restricted to an army of only 100,000 men, the Germans were prohibited from possessing antitank or antiaircraft guns and from erecting defensive fortifications along their western frontiers.[40] These stipulations meant that, for the foreseeable future, the *Reichswehr* would be only the shadow of an army, patently incapable of serious defensive operations save those related to internal security. The *Reichswehr*'s defensive impotence was revealed in 1920 and 1921 when incursions by Polish and Soviet irregulars along Germany's eastern borders had to be opposed by hastily assembled *Freikorps* units rather than by the inconsequential *Reichswehr*.[41] When French forces occupied the Ruhr in 1923, German studies assessing the possibility of resistance by the *Reichswehr* concluded that any such action was militarily impossible.[42]

Theory and reality thus converged to enforce a reliance on maneuver and offensive initiative within the new German Army since no other type of defensive action seemed desirable or practicable. Remembering the attritional slaughter of the Great War, many German officers were eager to embrace any tactical system that promised to avoid such battles. Too, the Versailles constraints guaranteed that the *Reichswehr* could not resort to the Elastic Defense that had stymied the Allies in 1917 since the *Reichswehr* was forbidden to have the materiel to do so.

German offensive and defensive tactics were based on Seeckt's theories of maneuver and aggressive action and were in effect until the early 1930s. Then, German offensive and defensive doctrines diverged: offensive practice continued on the road to mobility that led finally to blitzkrieg, while defensive doctrine reverted to more conservative practices reminiscent of the Great War. Accordingly, the Elastic Defense was revived for three major reasons.

First, a gradual broadening of German military perspective began following General Seeckt's 1926 resignation. Although Seeckt's ideas—and Seeckt himself—continued to be influential for some time, his successors were more tolerant of traditional doctrinal theories.

Second, the German Army began quietly to ignore some of the more onerous provisions of the Versailles Treaty, thereby increasing German military strength. This therefore allowed German military leaders to consider a wider variety of strategic options than the desperate, all-purpose formula of offensive maneuver championed by Seeckt.[43]

Finally, a rapprochement between the French and German governments in the late 1920s lessened French hostility and, with it, the likelihood of renewed French military intervention. The looming threat of the French Army—its potential for strategic mischief painfully demonstrated by the 1923 occupation of the Ruhr—was greatly diminished by the emerging French reliance on the Maginot Line. With French military resources so strongly committed to the passive Maginot doctrine of *couverture* from 1930 onward, Germany's overall military security was better than it had been at any time since 1918.[44]

In this atmosphere of greater strength and security, the *Reichswehr* took a more well-rounded view of military strategy. The Seecktian emphasis on aggressive maneuver was relaxed, and the German Army once again acknowledged that traditional defensive operations—including, in certain circumstances, positional warfare—would probably be necessary in future conflicts. Consequently, the Elastic Defense was revived as the fundamental German defensive technique.

The German field manuals published in the 1930s revealed the renaissance of the Elastic Defense and, with a few changes in later editions, were still in effect at the beginning of World War II. The most important of these publications, entitled *Truppenführung* (Troop Command), appeared in 1933 and replaced *Führung und Gefecht* as the basic German operations manual. Prepared under the supervision of General Ludwig Beck, chief of the German General Staff from 1933 to 1938, *Truppenführung* endorsed the traditional German method of elastic defense in depth.[45]

In fact, the doctrine in *Truppenführung* ended the distinction between positional defense and maneuver defense that had been created in *Führung und Gefecht* and specifically declared that "the defense of a hastily prepared, unreinforced position [such as would occur in open warfare] and that of a fully completed position is conducted on the same principles."[46] Also, the advanced position that *Führung und Gefecht* had placed in front of the defensive zones in open situations was made standard. Consequently, the 1933 version of the Elastic Defense consisted of the same three defensive zones as had appeared in Ludendorff's original concept, but with an additional advanced position posted in front[47] (see figure 3).

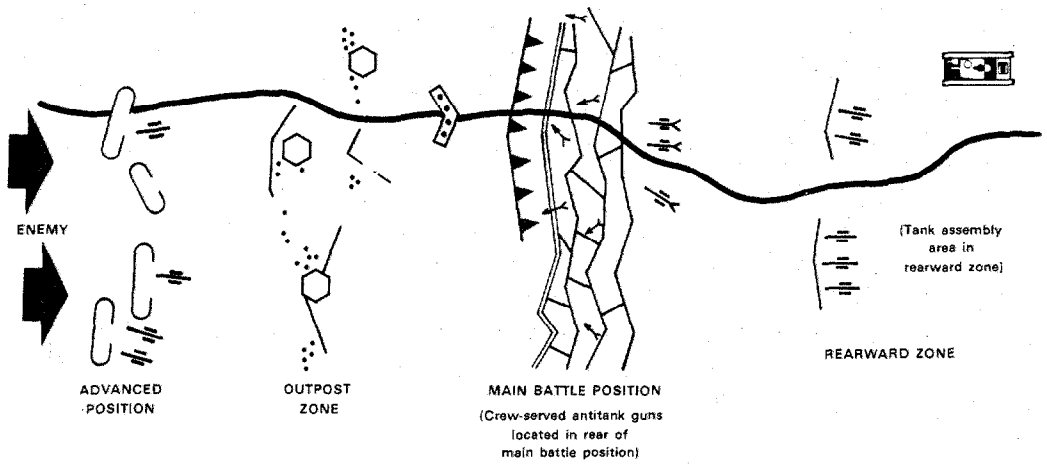


Figure 3. German Elastic Defense, 1933

In addition to *Truppenführung*, other specialized manuals such as the 1938 *Der Stellungskrieg* and the 1940 *Die Ständige Front* elaborated on the problems of positional warfare in greater tactical detail.[48] These manuals were supplemented by instructional material in professional journals. For example, from 1936 onward, *Militär-Wochenblatt* periodically published tactical problems hypothesizing static defensive operations. Significantly, the solutions to these exercises discussed the experiences of 1917 and 1918 as illustrative examples of proper technique.[49] Together, these field manuals and journal articles breathed new life into the Elastic Defense doctrine and fully revived the defensive system that the German Army had developed during World War I.

Other German military authors addressed the strategic ramifications of the Elastic Defense, assuring their readers that this new interest in defensive tactics did not signal a full return to the disastrous strategy of attrition. General Wilhelm Ritter von Leeb (later to command Army Group North during Operation Barbarossa in 1941) wrote a series of historical articles on defensive operations in *Militärwissenschaftliche Rundschau* in 1936 and 1937. Although predicting that future wars would still be decided by offensive maneuver, he argued that strategic defensive operations could not be discounted: "We Germans have to look to defensive operations as an important, essential method of conduct of war and conduct of combat, since we are in a central position, surrounded by highly equipped nations. Defensive should not be kept in the background as before the last war."[50] Leeb further stressed that the tried defensive principles of the Great War—depth and counterattack—could still be effective in modern battles of maneuver.[51] Echoing Leeb, a Major General Klingbeil warned readers of *Militär-Wochenblatt* in 1938 not to discredit positional defensive operations on principle since they could create circumstances favorable for decisive offensive action.[52]

The new manuals and spate of journal articles demonstrated the remarkable extent to which German military thinkers had reaccommodated themselves to the possibility of positional warfare. While most professed a preference for offensive maneuver, German theorists conceded that *Stellungskrieg*

was likely to be present, at least to a limited extent, on future battlefields.[53] Within this intellectual climate, Beck's revival of the orthodox doctrine of the Elastic Defense seemed not only prudent, but even virtually indispensable.

The problem of armored warfare, however, prevented a simple return to Great War tactics. World War I had provided brief glimpses of the potential combat value of tanks and motor vehicles, and from 1919 to 1939, all armies puzzled over how best to exploit these new machines.

In terms of German defensive doctrine, the tank problem posed two distinct questions. First, how could German defenses be made attack-proof against enemy tank and tank-infantry forces? Second, what was the best defensive use of the new German panzer units? The Germans framed their answers to both of these questions within the Elastic Defense schema.

Antitank Defense

Because the Allies used tanks impressively in 1918, German officers gave serious consideration to antitank defense methods. Rooted in their memories of the 1918 collapse was the nagging fear that—as Ludendorff had finally conceded—tanks had become the single most effective tool for prying open the German Elastic Defense. However, General Beck confined this interest to traditional channels.

Beck, who in *Truppenführung* returned the German Army to the Elastic Defense, held profoundly orthodox views. One symptom of this orthodoxy was Beck's reluctance to embrace new ideas about tank warfare. Beck's logic recalled the emphatic pronouncements of German officers in 1918 that tanks were merely nuisances to a properly organized elastic defense in depth. Beck saw the traditional combat arms—infantry, artillery, and even cavalry—as being decisive, and he resisted the notion that armored formations could have a pivotal battlefield impact.[54] Given such a conception, Beck deemed antitank defense measures as secondary to the central problem of halting artillery-supported attacks by enemy infantry.

According to the new German field manuals, the key to defeating enemy combined arms attacks thus lay in separating the enemy's tank and infantry forces. German soldiers were trained to concentrate their small-arms fire on the enemy infantrymen in order to separate them from any supporting tanks. While shredding the attacking infantry forces, German defenders were supposed to dodge enemy tanks, leaving the destruction of these metal monsters to specially designated antitank teams.[55] Once the opposing infantry attack had been smashed, any surviving tanks were considered both vulnerable and relatively inconsequential. Those tanks, rampaging through the German defensive zones like rogue elephants, could be dispatched almost at leisure by antitank weapons located to the rear.

Specific measures prescribed for antitank defense were mostly codifications of 1918 practices. Tanks were to be neutralized by a combination of obstacles, minefields, and antitank weapons. Although antitank rifles would be available in all parts of the German defensive zones, the crew-served antitank guns (*Panzerabwehr Kanonen,* or *Paks*) and direct-fire artillery would generally be located to the rear of the main line of resistance.[56] (The rearmed German

Army of 1939 had a seven-man antitank section armed with three antitank rifles in each rifle company. Each infantry regiment also contained a *Pak* antitank company, and each infantry division had a divisional antitank battalion of three additional *Pak* companies.[57])

Although *Pak* sections could be attached to forward elements in certain circumstances, the Germans thought these guns could be used more effectively as a "backstop" for the main infantry trench systems. They reasoned that these rearward antitank weapons would be relatively safe from any preliminary artillery bombardment, would be free to mass opposite tank penetrations as necessary, and would be able to engage those tanks without embarrassment from enemy infantry (see figure 4). German doctrine also allowed for the creation of special antitank assault groups composed of small teams of infantrymen who would try to destroy enemy tanks with mines and explosive charges from close range. As always, all German units were expected to counterattack vigorously in order to regain any position, even if it had been temporarily overrun by hostile tanks.

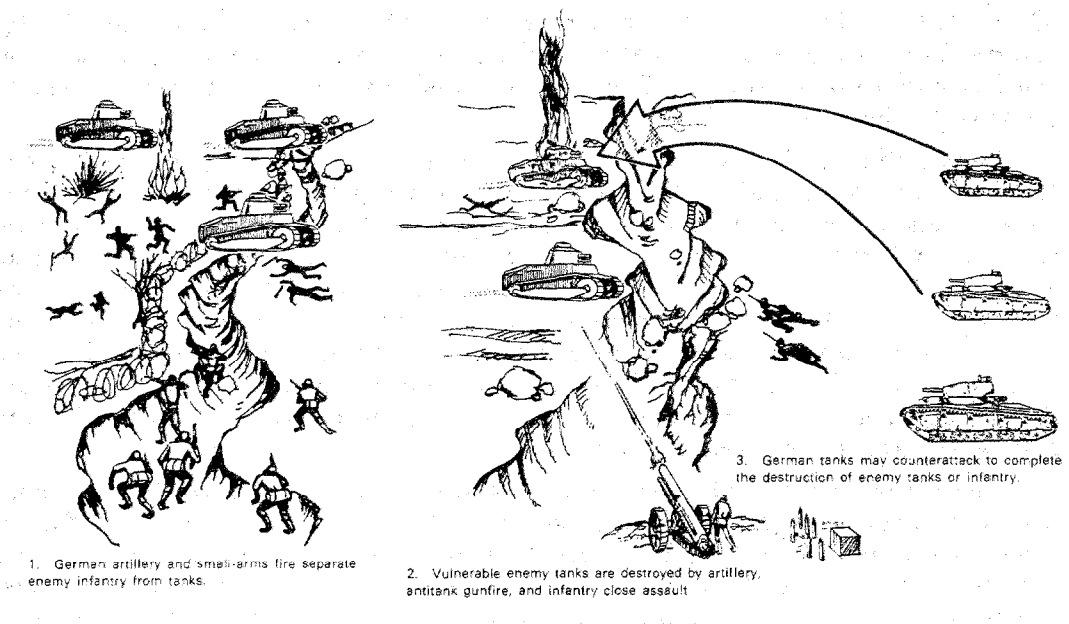


Figure 4. German antitank concept

Through the 1930s, German antitank doctrine thus corresponded to the techniques first hammered out in 1917 and 1918. The first task of the defending forces was to halt the enemy infantry; that done, the isolated enemy tanks would then be at the mercy of German antitank weapons and close assault.[58] Virtually all German writings about antitank warfare in the interwar period were based on the assumption that tanks without infantry were pitifully vulnerable to antitank weapons, an article of faith reaching back to the difficult last days of the Great War. One retired general praised the ability of "nearly invisible" antitank riflemen to prey on enemy tanks.[59] Another

German officer spoke for many when he asserted that experience in the Spanish Civil War confirmed that "the defense is superior" to tanks since every tank-antitank duel in Spain had allegedly ended with victory for the antitank gunners.[60]

Defensive Use of German Tanks

One remarkable omission from the list of German antitank weapons was the tank itself. General Ludwig Ritter von Eimannsberger, a prolific writer on antitank matters, characterized most German officers when he wrote in 1934 that "the principle claiming the tank to be the best antitank weapon has already been outlived and rendered untrue."[61] Like other facets of German doctrine, this belief stemmed from remembrances of the Great War, in which German tanks had played no such role. German tank design in the 1930s provided physical evidence of this prejudice, since few German tanks in production prior to September 1939 mounted a truly effective antitank gun.[62] Furthermore, during World War I, the German Army had become convinced that tanks were "expressly weapons of attack." This opinion was elevated to dogma in interwar German manuals and was frequently reiterated by Heinz Guderian and other German tank enthusiasts.[63]

Although panzers were not considered antitank weapons themselves, the Germans did develop a doctrinal role for their armored forces that exploited the tank's offensive nature and conformed neatly to the Elastic Defense format. In defensive battles, panzer units were to be held in reserve for delivering the counterattacks vital to the elastic defense in depth. The shock and mobility of the panzers would lend weight to German counterblows, thus assuring the annihilation of enemy infantry or armor mired in the German defensive zones.[64]

Some German officers saw in this system a clear-cut division of labor between tanks and infantry. Panzer units would be used exclusively in offensive roles, even within defensive scenarios. Infantry forces, presumably unable to keep up with the offensive battles of maneuver envisioned by the panzer generals, would be indispensable for defensive purposes due to their ability to occupy and hold terrain. That panzer forces might have to conduct defensive operations unrelieved by German infantry divisions was almost totally discounted.[65]

Early Trials: Poland and France

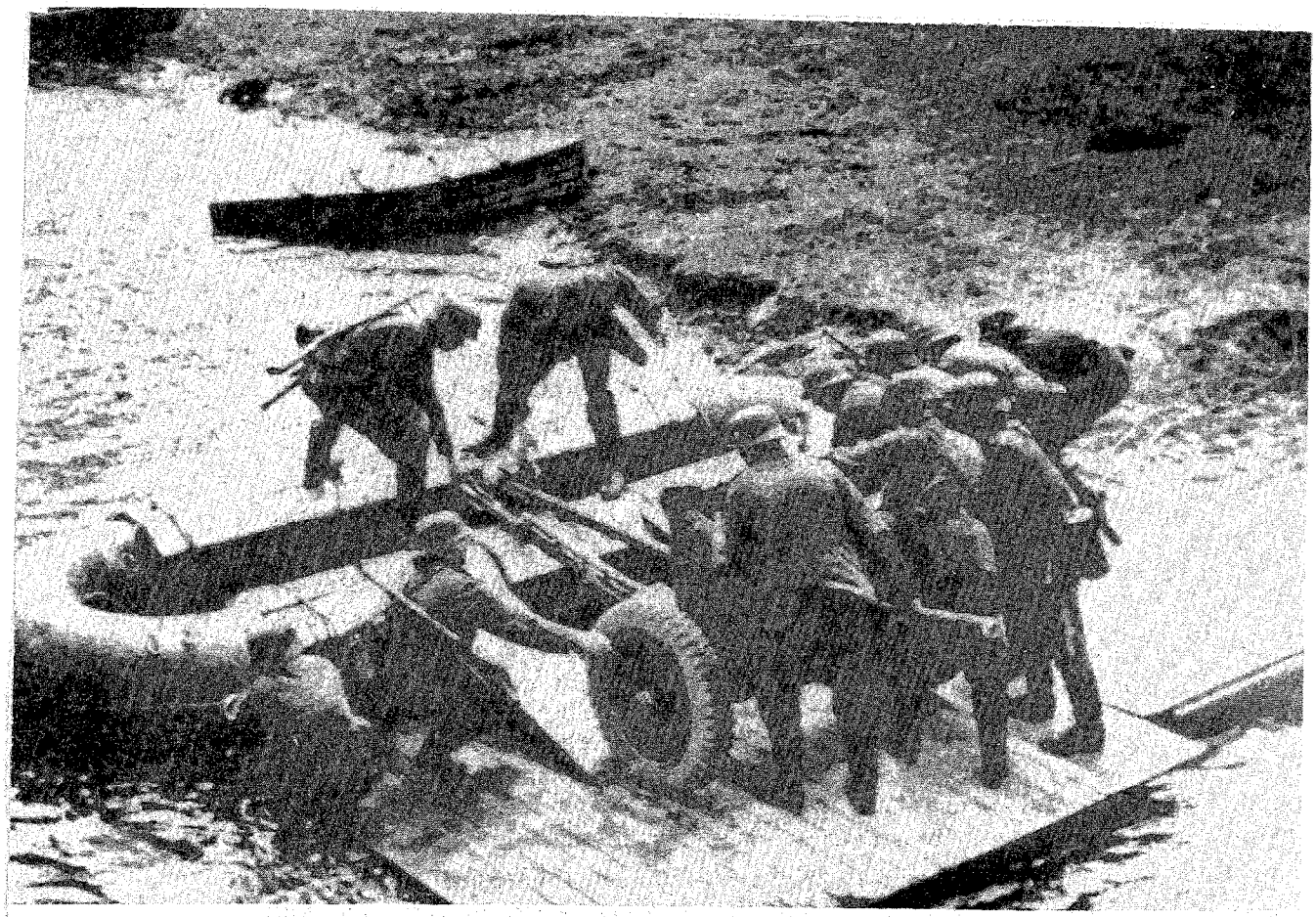
The campaigns in Poland and France provoked no changes to German defensive doctrine. If anything, operations during these spectacularly successful German offensives seemed to diminish the importance of defensive precautions. Skewered by German panzer thrusts, the Polish and French Armies succumbed without seriously testing German defensive measures in return. In each campaign, the Germans fought a small number of defensive engagements. Although the Germans learned some valuable tactical lessons, they were insufficient to spur a reevaluation of German defensive techniques.

After-action reports from the Polish campaign revealed a general dissatisfaction with training and small-unit leadership within the German Army.[66] Singled out for criticism were a number of reservist units that in their training and cohesion were not prepared for the rigors of the Elastic Defense.[67] In October 1939, in an Army High Command memorandum detailing deficiencies uncovered in Poland, defensive operations was listed as an area in need of immediate improvement. This complaint, however, emphasized performance rather than doctrine.[68]

The campaign in France likewise was not without its defensive lessons. Most disquieting was the British tank attack at Arras on 21 May 1940. There, the rapidly advancing German panzers had become separated from their following infantry. Falling on the unsupported German infantry forces, the British armored attack illustrated not only the danger inherent in the de facto German policy of giving separate offensive and defensive roles to their tanks and infantry, but also the inadequacy of German antitank weaponry. Only the timely fire of German 88-mm flak guns and 105-mm field guns prevented the German infantry from being entirely overrun, as shells from the German 37-mm *Paks* and the even lighter antitank rifles rattled off the British Matildas without apparent effect. German tanks, hurriedly retracing their steps and returning to the scene, were also outgunned by both the British tanks and antitank guns.

The close call at Arras caused some ripples of concern within the German Army; however, this concern did not mature into reform. Although the German panzer and infantry forces had become perilously divided during the advance to the Channel—a situation to be repeated on an even grander scale in Russia—neither the French nor the British had been able to exploit this vulnerability decisively. The Germans, therefore, shrugged off the potential danger. A few new motorized infantry divisions were activated in the year

German light tanks capture Polish supply column, 18 September 1939



German troops load a 37-mm antitank gun onto a pneumatic raft during a pre-Barbarossa exercise, May 1941

between the fall of France and the invasion of Russia, but not nearly enough to provide defensive security for the panzers or to take up the slack between the mobile units and the trudging infantry forces. Indeed, the Germans shortly reaffirmed the exclusively offensive role of their panzer divisions: a new panzer operations manual published in December 1940 devoted twenty-six pages to discussing attack techniques, but only two paragraphs discussed defense.[69]

More immediately disquieting was the woeful German antitank weaponry. Hitler ordered the punchless Panzer IIIs upgunned, an overhaul that was completed within the next year.[70] The German *Paks*, however, could not be so easily replaced or repaired. Although some captured French 47-mm guns and a few new 50-mm *Paks* were introduced to augment the 37-mm antitank guns, the smaller (and virtually ineffective) weapons remained the primary dedicated crew-served antitank weapons of German infantry divisions at the beginning of Barbarossa.[71] As an interim precautionary measure, German field artillery units placed greater emphasis on close-range antitank engagements during training in the spring of 1941.[72]

Overview: German Doctrine on the Eve of Barbarossa

Before the beginning of Operation Barbarossa in 1941, the German Army adhered to a defensive doctrine originally developed to address battlefield conditions of World War I. Although temporarily shunted aside in the 1920s

during a faddish pursuit of offensive maneuver, the conservative defensive practices of 1918 had been reinstated in the German Army by the mid-1930s. This defensive doctrine concentrated on halting enemy infantry attacks by means of a defense in depth consisting of a series of defensive zones. Within these zones, enemy infantry forces were to be defeated by firepower, tactical maneuver, and vigorous counterattack. In the 1918 tradition, tanks were regarded as a lesser threat than enemy infantry. German antitank measures followed the 1918 outlines: enemy tanks would have their accompanying infantry stripped away; their advance would be obstructed by mines and obstacles; and a mixture of direct-fire artillery, antitank gunfire, and individual close assault would destroy those tanks that actually penetrated the German defensive positions. German tank units had no defensive role other than to deliver counterattacks where necessary to help crush enemy penetrations.

Whatever its potential faults, this doctrine suited the structure of the 1941 German armies. Its few panzer units aside, the *Wehrmacht* was as overwhelmingly pedestrian as had been the Imperial German Army of 1918. The Elastic Defense fit the skills, capabilities, and disposition of this preponderantly infantry-based force. On the eve of World War II, foreign military observers correctly concluded that, with regard to defensive doctrine, the "German training manuals [showed] that the new German Army accepted the legacy of war-experience of its predecessors unreservedly."[73]

The German Elastic Defense doctrine made the following assumptions about modern warfare, and they would be severely tested in the campaign against Russia.

- The burden of any sustained defensive fighting would be borne by infantry divisions, supported only as necessary by panzers held in reserve for counterattack.
- Sufficient quantities of German infantrymen would be available in defensive situations to organize a cohesive defense in depth.
- The principal threat would be posed by the enemy's infantry forces, and therefore, any German defense should be disposed primarily with an eye to defeating a dismounted attack.
- German commanders in defensive operations would be allowed the flexibility to select positions and conduct the defense in an "elastic" fashion as had been the 1918 custom.

None of these assumptions had been disproved in the 1939 or 1940 campaigns. However, within the first two years of the Russian campaign, the German Army conducted major defensive operations under circumstances that invalidated them all.